Remarks

The undersigned thanks the Examiner for courteously conducting the telephonic interview of June 27, 2007. During the interview, Applicants' invention was discussed and contrasted with U.S. Patent No. 6,804,134 to Proebsting et al. The following four issues were discussed:

1) The unclear priority date for the '134 patent, which is a continuation-in-part ("CIP"), was discussed. Proebsting's provisional was only for the parent of the '134 according to the patent's cross-reference section, although it seems to be cited differently on the patent cover page printed by the USPTO. The Examiner kindly advised us to contact PAIR customer service for clarification of whether the provisional is considered to fully support (and lend priority to) the '134 patent, or just its parent. Unfortunately, a subsequent call to customer service failed to resolve this issue.

2) Proebsting's non-equal segments were discussed, where "L<M<N" (see, e.g., Proebsting at col. 4, lines 57-60; col. 5, lines 36-39). While Proebsting may do a good job of saving power due to increasing segment widths, Applicants teach that the increased segment widths would have greater capacitance. Thus, Proebsting has the problem of potentially increased matchline and/or sinkline times for successive segments. Proebsting may fail to recognize the problem with increased capacitance for increased segment width.

3) Applicants' invention may have improved speed over Proebsting for partial matches, such as when the first segment matches, since subsequent segments in Proebsting may take a greater number of clock cycles per segment, while each of

Applicants' subsequent segments take the same amount of time, for example. Thus, Applicants' clock frequency may be optimized to the constant time per segment. The Examiner suggested claiming "wherein search time is saved". Accordingly, Claims 2, 7, 12 and 17 have been amended.

4) Applicants' FIG. 4, reference numeral 42, was discussed. Proebsting fails to show a flip-flop for next sinkline based only on previous sinkline and matchline plus system clock. To the contrary, Proebsting may show completely separate clocks for each segment (which might be necessary due to longer delays from increased capacitance of Proebsting's wider segments, etc.).

Amended Claim 2 recites, *inter alia,* a "CAM . . . comprising a plurality of segments arranged in an array, wherein each of the plurality of segments includes a plurality of CAM cells, each of the plurality of CAM cells comprises a wordline, a matchline and a sinkline, the wordline being shared by all of the cells in a same row, the matchline and sinkline being shared by all of the cells in a same segment of the row, wherein each of the plurality of segments is substantially the same size, each of a plurality of matchlines connects to the same number of CAM cells, and search time is saved."

It shall be understood that embodiments according to Applicants' currently amended Claim 2 offer the distinct advantage of matchlines for finding matching words in segments of a CAM without the need to discharge all of the other matchlines for every search cycle. In addition, since each matchline does not connect to all cells in a wordline, but rather connects to a constant number of cells, its capacitance does not

increase as the CAM gets wider. Thus, as the widths of CAMs increase, the presently claimed matchlines substantially avoid the decreased operating speed and/or increased power consumption of conventional CAM architectures. This feature is patentably distinguishable over prior art such as the '134 to Proebsting, for example, in which matchlines are connected to a greater number of CAM cells as the width of the CAM array is increased, thus slowing the wider CAM arrays.

Therefore, amended Claim 2 is neither taught nor suggested by the '134 to Proebsting et al. Similarly, amended Claims 7, 12 and 17, which each recite like features, are also neither taught nor suggested by the '134 to Proebsting et al., whether taken alone or in combination with any of the other references of record in this case.

Conclusion

Accordingly, it is respectfully submitted that amended independent Claims 2, 7, 12 and 17 are in condition for allowance for at least the reasons stated above. Since Claims 3-5, 8-10, 13-15 and 18-20 each depend from one of the above claims and necessarily include each of the elements and limitations thereof, it is respectfully submitted that these claims are also in condition for allowance for at least the reasons stated, as well as for reciting additional patentable subject matter. Thus, each of Claims 2-5, 7-10, 12-15 and 17-20 is in condition for allowance. All issues raised by the Examiner having been addressed, reconsideration of the rejections and an early and favorable allowance of this case are earnestly solicited.

Respectfully submitted,

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